

THE Saturday Magazine.

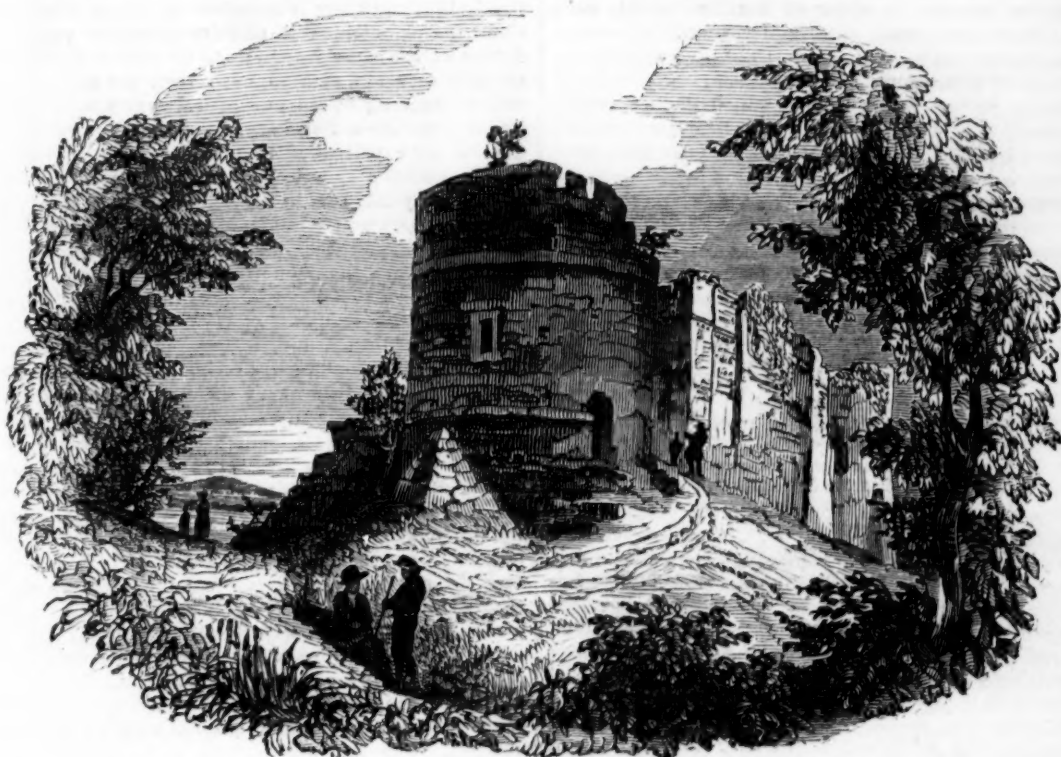
No. 398.

SEPTEMBER

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THE WYE AND MONMOUTHSHIRE. No. IV.



REMAINS OF GOODRICH CASTLE.

GOODRICH CASTLE—GOODRICH COURT—LYDBROOK COURTFIELD—WELCH BICKNOR—COLDWELL'S ROCKS—SYMOND'S YATT.

THREE miles below Ross, on the left, stands *New Hill Court*, a large and roomy mansion, and on the right bank at no great distance beyond, *Pencraig*, crowning the brow of a steep eminence at a sudden turn of the river, and embracing a lovely view of Ross, mellowed by distance. After gliding onwards for another mile, the tourist beholds that singularly interesting ruin **GOODRICH CASTLE**, crowning a bold eminence clothed with trees in the most picturesque grouping. The river here makes one of its most graceful and brilliant sweeps, and the landscape is one of the finest along its course. It is difficult, indeed, to conceive any scene more exquisitely beautiful, than Goodrich presents, whether viewed from a boat, or from the height on which rest the massive remains of the aged ruin. A steep pathway through the wood, from the edge of the river, leads to the castle, the exterior of which, on a near approach, we agree with Mr. Roscoe, "is less striking than that of many other castles, except the gateway, which is eminently beautiful*," and the most curious and perfect front. The Anglo-Saxon keep, evidently the most ancient portion, is a fine specimen of castellated

architecture; and owing to the amazing thickness of the walls, it has fortunately been tolerably well preserved from the assaults of time and the spoiler. Several of the towers are richly decorated by ivy, that "adorner of the ruin," as well as by clematis, which add greatly to the general effect. A beautiful pointed archway, part of the chapel in the interior of the castle, is exceedingly graceful, and from a breach in the wall beyond, there is a very sweet view of Goodrich Court, the residence of Sir Samuel Rush Meyrick, the eminent antiquary.

Much of the ancient history of the castle is lost in obscurity, but we find that a Doomsday proprietor, of the name of Godric, held a fort which commanded the ford on the river here before the Conquest, from whence it is probable that the castle derives its name. In 1165, William Marshall, Earl of Pembroke, held it, and sixty-five knights' fees belonging to the honour of Chepstow; and this noble was the feudal lord of the whole district from Ross to Chepstow. The castle in its earliest days consisted only of the keep, since which, the courses in the masonry, and the various styles of architecture in the round towers and other parts, abundantly testify that many additions were made at subsequent periods, the latest of which appear to be of the time of Henry the Eighth. It was anciently a seat of the Talbot family, and in 1347, Richard Talbot, lord of the castle, founded a

* Roscoe's *Wanderings in South Wales*.

priory of black canons at Flansford, in the neighbourhood. Goodrich was a very strong and important fortress during the civil war, and successively taken and retaken by the opposing parties. In 1646, it was garrisoned for the king by Sir Richard Lingens, who defended it with great gallantry and resolution against Colonel Birch and the Parliamentary forces. The leaguers commenced a close siege on the 10th of March, and the castle did not surrender until the beginning of August following. It was afterwards dismantled and "slighted," (as stated in the records of the period,) by order of the Parliament, since which it has been "silently decaying."

And thou proud Goodrich, changed and worn,
By time and war, and tempest torn,
Still stand'st thou by that lovely stream,
Though passed thy glory like a dream;
Stand'st like a monitor, to say
How nature lives 'midst art's decay;
Or, like a spectre, haunting yet
The spot where all its joys were set.

Time hallowed pile! no more, no more
Thou hear'st the hostile cannon roar;
No more bold chiefs thy drawbridge pace
To battle, tournament, or chase;
No more the valiant man thy towers;
No more the lovely grace thy bowers;
Nor bright eyes smile o'er the guitar;
Nor the trump stirs bold hearts to war.

The falling meteor o'er thee shoots;
The dull owl in thy chambers hoots:
Now doth the creeping ivy twine
Where once bloomed rose and eglantine;
And there where once in rich array,
Met lords, and knights, and ladies gay,
The bat is clinging to those walls,
And the fox nestles in those halls.

Let us now proceed to visit the unique and castellated mansion which crowns the opposite height—GOODRICH COURT, the seat of Sir S. R. Meyrick, whose magnificent collection of ancient armour is well-worthy of inspection. The elevation embraces examples of the styles in use in the period between the reigns of Edward I. and Edward III. "The surrounding battlements, turrets, loop-holes, and machicolations look bristlingly on the defensive, while the small, dry moat, laid with velvet turf, and the fair flower-beds perfuming the quiet air around, are out of keeping, though agreeably so *." By the kind permission of the worthy owner, free access to this interesting mansion is cheerfully accorded to the public at all times. There are some fine paintings in the dining-room and several of the other apartments. The library is adorned with oak carving, which, with two miniatures by Holbein, enclosed in exquisitely carved ivory frames, particularly attract attention. The antiquities of different ages and countries are arranged with exceeding taste and skill in the various apartments.

The Wye, after passing Goodrich Castle, takes so bold a turn, that the ruined fortress remains long in sight—a memento for the moralist. On the right may be seen the crumbling fragments of FLARESFORD PRIORY, the chapel of which has been converted into a barn. At KERNE BRIDGE, the banks of the river assume a new and grander aspect, gradually rising into steep woody eminences, occasionally intermingled with beautiful slopes of verdant green. Upon the right side Coppet Wood, with its bold swells and hollows, exhibits a fine effect of light and shade, and on a more gradual rise to the left stands Bishop's-wood House, with cottages, fields, and orchards, rising amphitheatrically above each other. Both sides of the river are here steep and woody; and the tall and

distant spire of Ruar-dean church may be distinguished amidst the trees on the left bank, whilst the deep umbrage of the "Forest†" hills, which here rise in lofty grandeur in the front, confer an almost indescribable charm on the landscape.

A streamlet called Bishop's brook, which empties itself into the Wye at this spot, divides the counties of Hereford and Gloucester. At Lydbrook, is a large wharf, where coals brought on a steep tram-way from the Forest of Dean, are shipped for Hereford, Ross, and other places. In the background is a rich woody hill, and there is sometimes a degree of bustle about the place which is pleasing from its variety. A turn of the river brings us to Courtfield House, a modern mansion, said to have been the site of an ancient building where our fifth Harry was nursed by the Countess of Salisbury, whose effigy some antiquaries have pretended to discover on a tomb in Welch Bicknor church, just below Courtfield. Sir Samuel Meyrick, has, however, pronounced the costume on the monument to be of the era of Edward the First. Rosemary Topping, a picturesque eminence, so called from the mellow luxuriance of its sides, leads us to that "majestic piece of rock scenery," the COLDWELL ROCKS.

These magnificent and, in some parts, precipitous masses of limestone rock, overhung with oak copse and underwood, present at their commencement—about two miles from Welch Bicknor, on the left bank of the river—an insulated appearance, rudely resembling the donjon tower of some ancient fortress. A wall of rocks of irregular outline, somewhat similar to the much admired St. Vincent's range at Clifton, next succeeds, and displays stern and sometimes fantastic masses, scathed and weather beaten, here and there relieved by many coloured lichens, and stunted shrubs. The river at their feet is deep, dark, and solemn, and the effect, more especially by moonlight, is wild and romantic in the extreme. The opposite bank is a succession of steep, woody slopes, terminating in a hilly common of brown and uncouth aspect, though occasionally relieved with an oasis of verdure. The lofty and abrupt rocky promontory which terminates the Coldwell range, is called SYMONDS (or CYMONS) YATT. The ascent from the river, by a "winding rocky road, between high banks, under arches of hazels and underwood," commands several exquisite bits of landscape. The summit once attained, a scene of electrifying beauty, especially if the day is sunny and cheering, bursts upon the sight. In the foreground, the attention is occupied by a picturesque view of Goodrich village and church; beyond which rise the spires of Ross, and of several village fanes;—now and then a glimpse is caught of the placid Wye, pursuing its "devious way" through a richly-wooded and fertile country; the beautiful, undulating outline of the Malvern hills partly fills the background, and more to the left the mountains of Radnor and Brecknock loom darkly.

The morris dancers of Monmouth, the Forest of Dean and Lydbrook, generally assemble at Cymon's Yatt, at Whitsuntide, to celebrate their annual "revells" on its summit—a verdant carpet of turf, with a natural barrier of rocks and underwood. Last year (1836) the "revellers" contended for the possession of the post of honour, and a serious conflict took place, the result of which was that several of the combatants were carried off the field, very seriously injured. Affairs like this, however, rarely occur at the celebration of this curious old custom. Traces of Offa's dike may be discerned in the Forest about a mile from Cymon's Yatt.

* Roscoe's Wanderings.

† Forest of Dean.

RECREATIONS IN NATURAL PHILOSOPHY.

No. V.

ON PERPETUAL MOTION.

AN amusing, but at the same time a melancholy and instructive history might be formed, of the various visionary schemes which, in all ages, have disposed some enthusiastic men to dissipate their time and fortune in seeking to obtain some object, which should either confer boundless riches on its possessor, or shield him from all the ordinary accidents of life. The alchemist who sought for the art of transmuting the baser metals into gold, was not a greater visionary than the mechanist who sought, or who seeks, for the "Perpetual Motion." In the same class likewise we may place the geometer, who aims at the impossible achievement of squaring the circle.

Most persons have a vague and incorrect idea of the real nature of the difficulty and futility of the question before us. The writer has frequently met with well-educated persons, who, on seeing the beautiful motions produced in electro-magnetism, exclaim, "Why, this is perpetual motion!" But this is an incorrect application of the term. If by it we mean "the production of a machine which, being once set in motion, shall go on, without stopping, until it is worn out," then we admit that such a machine can be produced. A common water-mill will continue to move until worn out, if the river into which it dips afford a due supply of water. If it be objected that the river may possibly become dry, we answer that it is not uncommon on the Continent, to construct water-mills in boats, which are moored in rivers that are never dry. The steam-engine will continue in motion so long as a due supply of steam is kept up; and electro-magnetism gives instances of rotations which may be made perpetual, by means of permanent galvanic batteries.

But the projector of "perpetual motion" will not apply that term to these instances; for, according to him, perpetual motion can only be produced by a machine which, being set in motion, shall go on till worn out, without any power (such as wind, water, steam, galvanic agency, &c.) being employed to keep it in motion.

Now we ask whether any man in his senses, or one in the possession of the slightest knowledge of mechanical science, could, for a moment, think of taking any means towards the attainment of such an object? If he arrange levers, cords, and pulleys in a peculiar way, or do not arrange them at all, how can he expect motion to result without the continued application of a moving power? He may as well bid the carriage proceed without the tractive force of the horse, the steam-engine to work without steam, the ship to sail without wind, tide, or paddles, or the water-mill to grind corn when it dips into a tranquil lake.

If our definition of perpetual motion be correct, we would ask what is it that first sets the machine in motion? This must be a force of some kind; but all our experience tells us, that a force is also necessary to keep it going when motion has commenced. However strongly a boy spins his top, it will soon cease to rotate. If our watch be set going, the attempt of the spring to uncoil itself is a constant source of motion; and, after a certain number of hours, that motion ceases, and can only be renewed by winding up the watch again. If a watch were a machine capable of exhibiting perpetual motion, all that would be necessary would be, to put the works together, and then leave them to move spontaneously

as long as the materials of the watch lasted. The being who could do this would be superhuman, for his machine would furnish of itself the power by which it works. Art supplies us with no such instances whatever; and if we seek for instances at all, we must look to science: but if we go even to the sublimest of all sciences, Astronomy, it will not avail us in such a search; the planets move round the sun in beautiful regularity, but it required the will and the power of the Creator to set them in motion.

When we descend from the mechanism of the heavens to the rude machines made by man, we find ourselves still more removed from the object of our search. The purpose of every machine is either to increase power or to change its direction. Man may make the steam-engine pump up water; here steam is the force and the moving power, but man will never be able to construct an engine which shall pump up sufficient water to keep itself at work. The question how such a machine, the very object of which is ridiculous in its enunciation, may be constructed, has occupied the thoughts and the fortunes of many men, and may still continue to occupy both, until projectors see the necessity of studying mechanical science, before they think it possible to attain to that skill which really exists only in the Creator. Science confers a double boon upon man; it increases his power, and it teaches him that that power has a limit, by which he is restrained from seeking after impossibilities.

The alchemist who sought to convert the baser metals into gold, was a less culpable projector than he who seeks the perpetual motion. The former proceeded on the mistaken assumption, that all the metals consisted really of gold and silver, but that certain impurities, combined with the noble metals, gave each of the baser metals its distinctive character. Thus, lead was supposed to consist of gold and a certain impurity, which two constituted lead, and, consequently, if the impurity could be removed, gold would remain, and so on with the other metals. The alchemists were in general men who had studied all the chemical knowledge, or what passed for knowledge, of their age; but the projector of "perpetual motion" is, we believe, always an ignorant enthusiast, who has not studied the commonest principles of mechanical philosophy, or, if he have passed through this purifying ordeal, he comes out unpurified, for he disbelieves those principles which would, if understood, prevent him from pursuing such futile researches.

Our distinguished countryman, Dr. Thomas Young, says, that—

To seek for a source of motion in the construction of a machine, betrays a gross ignorance of the principles on which all machines operate. The only interest that we can take in the projects which have been tried for procuring a perpetual motion, must arise from the opportunity that they afford us to observe the weakness of human reason; to see a man spending whole years in the pursuit of an object, which a week's application to sober philosophy might have convinced him was unattainable.

It will be amusing to adduce a few examples of this "gross ignorance," in some out of the numerous attempts which have been made to obtain perpetual motion.

Many machines have been constructed on the supposition that any number of weights ascending by a certain path, one side of the centre of motion, and descending on the other side at a greater distance from the same centre, must cause a constant preponderance on the side of the descent. For this

purpose the weights have been fixed 'on hinges,' (as in fig. 1, where the small balls represent the weights attached to hinges,) which allow them to fall over at a certain point, and so, by a peculiar contrivance not shown in the figure, are made to become more distant from the centre of motion. This disposition of the weights is shown in fig. 2, where the balls *A B C* are farthest removed from the centre of motion. Now, if we look at the number of balls on each side of the middle vertical line, we shall see that there are more on one side than on the other; and it was supposed that the force of gravity would tend to depress that side on which the greater number of balls were situated, and thus to produce motion. In another instance, the weights were made to roll along grooves or ledges,

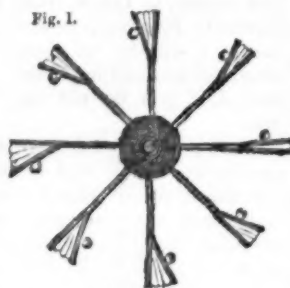


Fig. 1.

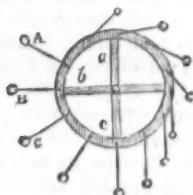


Fig. 2.

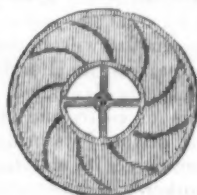


Fig. 3.

as in fig 3; (a ball being in each division, and prevented from falling out by a disc of glass covering the wheel,) so that the balls are, in succession, during the descent, driven nearer to the rim of the wheel.

But all such contrivances are built upon a fallacy. Although the number of weights on one side of either of the above wheels may be larger than that on the other side, yet they are proportionally nearer to the axis; so that what they gain in number, they lose in exactly the same amount in leverage, or moving power. One of the above fallacious machines was made the subject of a patent.

Another projector thought to obtain perpetual motion, by constructing a goblet of the form shown in



Fig. 4.

fig. 4. This goblet gradually diminished in size towards the bottom, until it became a tube, which was turned up, so as to point into the mouth of the vessel. He imagined that a pound or more of water in *a*, must more than counterbalance an ounce of water contained in the tube *b*; and must, therefore, be constantly pushing that ounce forward into the vessel again; so that there would be a constant stream circulating through the vessel and tube. When he made the trial, he found, to his dismay, that the liquid rose to the same height in the tube as it stood in the goblet, by virtue of the well-known law, that liquids tend to a constant level.

The "perpetual motion" was advertised some years ago as being exhibited in London. The advertisements were well written, and had an air of scientific authority about them, which imposed on the credulous. "The scientific world, and an enlightened public, are respectfully invited to come and pronounce as they find; for in this extraordinary combination of simple agents, the motion could not be diminished by any resisting power; and the desideratum for

which the mechanical world had so long languished, is now patent to all at a shilling a-head.—Children and servants half-price."

Crowds of the "enlightened public" went to see this wonder, thus so liberally and so cheaply thrown open. In the midst of a large room, there was an octagonal frame supported on legs, about three feet from the floor. Within the frame-work appeared several, slender, metallic rods, radiating from a point, and descending at an angle of about 40°, till they terminated in small, flat projections, attached to a circle which was enclosed within a glass case. The whole being suspended, or balanced on an upright centre, moved slowly round, the motion seeming to originate in, and to be perpetuated by, itself.

This exhibition was one of the London lions for a few weeks. But a scientific man, examining the apparatus somewhat narrowly, observed certain minute apertures within the exterior case, and satisfied himself that streams of air were admitted thereby, so as to strike against the projections at the bottom of the rods, and thus keep the machine in steady motion. The publication of this explanation stopped the perpetual motion immediately, but not before the projector had gleaned a rich harvest.

A similar exhibition was got up in Edinburgh some years ago, by a Scottish shoemaker; and, more successful than the London exhibition, it is said to have imposed upon several scientific men. The motion was said to be due to an "alternation of magnetic influences, by means of an interposed substance, which neutralized them in turns." In this substance, which the inventor pretended to have discovered, lay the whole secret. But it happened that some accident discovered a suspended weight in an adjoining room, which communicated with the perpetual motion apparatus by a cord that passed under the floor, and up through the leg of the table on which the apparatus stood. This weight was wound up every night except Saturdays, the wife of the impostor insisting that, perpetual or not, the motion should have a respect for the fourth commandment.

We may conclude this short article, by advising any ingenious person who may fancy that he has discovered the "perpetual motion," or any machine endowed with new powers, to pause deliberately before he endeavours to realize the creations of his imagination. Let him read those scientific books which are connected with his subject, with the determination to know, and to profit by, the labours of those who have preceded him, and not to proceed with his project if he find either that it is impossible, according to the rules of science, or that it has been discovered before. Had patentees always grounded their invention on scientific principles, much misery, and many a sickened heart from "hope deferred," would have been spared, for mechanical discoveries are rarely made by those who are ignorant of science. A man may find a sum of money by accident, but the reader may be assured that accident never discovers a new machine or a new principle, unless the mind be previously prepared by study to receive it.

A few years ago, a person fond of mechanical pursuits, submitted to the writer a plan for a machine, whose object was to supersede steam in all those cases where the steam-engine is now employed. Water was to be the moving power, and the principle was somewhat similar to that of the hydrostatic press. The writer advised the projector to study the subject well, by referring to such works as treated of hydrostatical machines, before he embarked his capital in the project. This, however, he refused to

do, stating that he should read no such books, because his invention, being quite new, could not be affected by any thing that had been written on the subject. Upon this resolution he acted,—contrived such arrangements of machinery as had either been discovered before, or had been proved to be fallacious, and spent much money, without the smallest prospect of a proportionate return for it. We fear that such instances are far from rare.

AN AMERICAN'S OPINION OF THE WEALTH AND POWER OF GREAT BRITAIN.

As in approaching a great and wealthy city, every thing conspires to excite high expectations, long before you get a glimpse of its tall steeples and magnificent buildings; so you cannot approach the island of Great Britain, from any quarter, without perceiving, while yet its cliffs are below the horizon, that you are drawing near to a great commercial country. If it is the Irish Channel which you enter, you find it covered with coasters, and steam-vessels, and stately merchantmen and splendid packets. Is it the harbour of Plymouth or of Portsmouth for which you steer, it is whitened, in like manner, with a busy and prosperous commerce; and proudly bears upon its bosom many a gallant ship of the Royal Navy. Or do you bear away for the English Channel, the waters are everywhere instinct with commercial enterprise, and laden with its richest products. And as you sweep round the island, and enter the Thames, and are borne onward by the rising tide, towards the great emporium of the world, you are astonished to see what fleets of merchantmen are arriving and departing; and still more, when, for many miles below London, you are obliged to thread your way through dense forests of masts, from the tall "Norwegian pine," down to the slender spars of the humble fishing smack. Such are the thousand demonstrations of the wealth and power of Britain which strike you, even before you set your foot upon her shores; and as you make the tour of the island, it is impossible not to feel that she is the richest country on the globe.

Let me suppose then, that you take one of the packets for Liverpool. You will, of course, when you arrive there, embrace the earliest opportunity to see what is most worthy of a stranger's attention in that prosperous town. You will look at the public buildings—at the long ranges of lofty warehouses—at the immense piles of cotton and other commodities, just discharged upon the quays; and, above all, at the docks themselves, ample enough almost for a great navy to ride in, and crowded with merchantmen and packets, as if the trade of a kingdom was concentrated there: all these you will pass in rapid review, and they will, I may venture to predict, give you a higher idea of the wealth of the place, and the extent of its trade, than any description has ever conveyed to your mind. And then, too, the quantities of goods daily arriving by the Liverpool and Manchester rail-road, for shipment to the United States and other foreign markets, will vastly exceed all your previous conceptions.

Is Manchester your next stopping place? See how many thousand bales of cotton are transported to that vast market in a single day, to be consumed, almost as soon as they reach the mills; pass through some of the largest factories—look into the warehouses, many stories high, and near a furlong in length—think what cargoes of crates, bales, and packages are put up and sent off every week, and

what millions of pounds have been invested in buildings and all kinds of machinery; then pass on, if you choose, to Leeds, from Leeds to Sheffield, from thence to Birmingham, and so on, from one manufacturing town to another, diligently making your observations and inquiries, and it will be strange, indeed, if you do not say, "the half was not told you."

Nor, if you would form any just estimate of the enormous wealth and resources of England, must you fail to notice what a vast amount of business is done upon the numerous canals and great roads of the kingdom. You must look, also, at the crops and pasturage, and flocks and herds, such as the world can nowhere exhibit, on an equal extent of territory; and when you have done all this, and glanced at the proud castles and wide domains of the nobility, and thought of their princely incomes, and looked into the depots, and arsenals, and dockyards of the kingdom, conceive, if you can, what must be the aggregate wealth, and what the power of such a country.

But I have not yet spoken of the metropolis the heart of this mighty empire, whose beat fills every great artery, and sends life and health to all the extremities of the body politic. You must see London, or all your conceptions of the riches and greatness of the empire will be extremely inadequate. London! its palaces, its churches, its Post-office, its Custom-house, its Exchange, its *Bank of England*, its wilderness of costly and magnificent edifices, both public and private; its bridges, its warehouses, its docks, its commerce, its merchandise, its liveries, its nobles, its bankers, its thousands of high-minded and wealthy merchants; but I forbear. There have been more populous cities in the world than London; but she is incomparably richer than any other, whether ancient or modern. It would scarcely be extravagant to say, that she possesses the means of buying out half a score of the largest capitals of Europe, at a fair valuation. Who will deny that London is, at this moment, the great banking-house of the world, and is able seriously to affect every moneyed system of every nation under heaven, almost at pleasure!

What was it but British gold, that enabled Spain and Germany, and other continental powers, to meet the shock of the French Revolution; to keep such vast armies in the field; to maintain the struggle with the greatest conqueror of modern times, for almost twenty years, till the whirlwind of the last battle swept him away, and a rock in the wide ocean received him to its safe and final custody? What other nation was ever able to build and keep in commission a *thousand ships of war*, like those which rode triumphant in every sea, and I may say, blockaded the whole continent of Europe for ten years?

It appears from authentic sources, that during the French Revolutionary War, which broke out in 1793, and lasted till 1802, Great Britain expended 464 millions of pounds. The war against Bounaparte began in 1803, and ended in 1815. During those twelve years of extravagance and carnage, she spent the enormous sum of 1159 millions!!—771 millions of which were raised by taxes. Yes, *seven hundred, seventy-one millions of pounds*, or about 3759 millions of dollars, were paid into the treasury, by the people, in twelve years!—that is to say about 312,000,000 of dollars annually, or more than 800,000 dollars per day!! Thus the expenditure of Great Britain in these wars during 20 years amounted to 1623 millions of pounds, or 8000 millions of dollars. Was there ever any other nation since the world began, that could have raised one-third part of the sum without utter bankruptcy and ruin? Now, be it remembered, that nine-

tenths of this incredible sum was as much lost to the nation as if it had been thrown into the Atlantic; and yet there is no counting her remaining treasures. It is true her national debt is enormous, between *eight and nine hundred millions* of pounds, under the weight of which it has often been predicted she must one day sink to rise no more. But to whom does she owe this debt? To France? to Russia? to the United States?—No; but to *herself*; that is, to her own people. Not a dollar of it is due to any foreign nation—so that if the British government were to declare itself bankrupt to-morrow, the *nation* would still be just as rich as it is now. It would be an act of extreme injustice to all the fundholders, to be sure, and would ruin thousands of families; but the money would all remain in the country—and Britain would continue to be, as she is, by far the richest nation in the world.

But how is this to be accounted for? She was once poor, and how has she accumulated such enormous treasures? How is it, that after throwing away money enough, in foreign wars, to enrich a great empire, she has still enough left to buy out twenty kingdoms? In answering these questions, I shall be led to glance rapidly, as I proposed, at *her natural resources, her agriculture, her manufactures, and her commerce*. And,

First, *what are the natural resources of the island of Great Britain?* Who, in looking at it, (a mere speck upon the map of the globe,) would suppose there could ever be such an accumulation of wealth and power, as it undeniably contains, on so small a territory? None of its mountains teem with the precious ores, and none of its rivers "roll down their golden sands." It has some liberal veins of copper; but its most valuable minerals are iron, tin, and lead. The single State of Virginia is larger by nearly three millions of acres than the whole of England and Wales, from the "Land's-end to the banks of the Tweed." Missouri, also, is larger by a million of acres; Georgia by more than half a million; and Illinois contains just about the same number of square miles. The climate of Britain is better than that of almost any other country so far north, being greatly modified by the proximity of the Atlantic and German Oceans; but it will not compare with some others, in milder latitudes. In some parts of England the natural soil is deep and rich; in general it is *good*; and it is certainly almost everywhere susceptible of high cultivation. But my belief is that the soil of Kentucky is richer—Illinois is richer; and to say nothing of some of the States further south, I am strongly inclined to the opinion that both New York and Pennsylvania contain more square miles of first-rate land, in proportion to the area, than England and Wales. I speak now of the soil in its virgin state—certainly that of England is under higher cultivation.

So far as great water-power contributes to the wealth and prosperity of a country, Britain enjoys no advantages over other nations. In fact, she has very little, compared with many others that are infinitely inferior to her in capital and enterprise. But she does not need it. She has inexhaustible beds of coal, and these, with the steam-engine, are worth more to her than would be all the water-power of a hundred Genesee or Merrimack rivers. By the aid of steam, she sinks her shafts wherever coal, or any of the valuable ores are found, and brings up the product from the depth of a hundred fathoms. She erects her furnaces and forges on the spot; and whether it be hill or dale, she generates with the greatest ease, all the power she wants, to wield the most ponderous machinery. If it is lime that she wishes to prepare for building, or for manure, she rarely finds it neces-

sary to go far for coal to burn it. Indeed, it is not uncommon to find alternate strata of coal and iron and limestone, all in the same pit; and then you will see all the processes of bringing them up from its dark caverns, manufacturing the iron, and burning the lime, going on at once. Some of the veins are followed by the workmen to the distance of one or two miles, and it was exceedingly interesting to me, to see fine wheat and other crops, waving over extensive fields, while the excavations were going on below, and yielding to the proprietors a hundred times the value of the lands themselves. Before the prodigious power and various applications of steam were discovered, these vast beds of coal were valuable, simply as common fuel; but now there is nothing but what they can accomplish, and they are worth in comparably more to the country, than the mines of Potosi would have been, had they been placed in the mountains of Wales instead of the Andes.—REV. DR. HUMPHREY.

CORONATION ANECDOTES. No. VII.

EDWARD VI.

EDWARD VI. was crowned February 20th, 1546. "He rode through London into Westminster," says Holinshed, "with as great roialtie as might be, the streets being hung, and pageants in divers places erected, to testifie the good willes of the citizens . . . As he passed on the south part of Paule's churchyard, an Argosine came from the battlements of Paule's church upon a cable, being made fast to an anchor by the deane's gate, lying on his breast, aiding himselfe neither with hand nor foot, and after ascended to the middest of the cable, where he tumbled and plaid manie prettie toies, whereat the king and the nobles had good pastime." Upon this, Holinshed quaintly remarks in the margin, "Paul's steeple laie at anchor." We have already noticed the remarkable changes made in the ceremonial for this prince's coronation by the lord protector, the duke of Somerset.

At this coronation, when the three swords, for the three kingdoms, were brought to be carried before him, the king observed, that there was yet one wanting, and called for the BIBLE. "That," said he, "is the sword of the spirit, and ought in all right to govern us, who use these for the people's safety, by God's appointment. Without that sword we are nothing: we can do nothing. From that we are what we are this day . . . we receive whatsoever it is that we at this present do assume. Under that we ought to live, to fight, to govern the people, and to perform all our affairs. From that alone we obtain all power, virtue, grace, salvation, and whatsoever we have of divine strength." Child as he was, so well had he been trained, and so excellent was his moral and intellectual nature, that he was capable of thus thinking and thus expressing himself. One, who was about his person, says of him, "If ye knew the towardness of that young prince, your hearts would melt to hear him named: . . . the beautifullest creature that liveth under the sun; the wittiest, the most amiable, . . . and the gentlest thing of all the world." "No poor," says Fuller, "passeth by him without praising him, though none praising him to his full deserts."

QUEEN MARY.

Mary, the first female sovereign of this realm, was crowned on the 1st of October, 1553, by Stephen Gardiner, bishop of Winchester, the archbishops of York and Canterbury being then prisoners in the Tower.

On the last day of September she went in state from the Tower to Westminster in an open chariot, drawn by six horses, covered with cloth of tissue. Holinshed says of her dress, "she sate in a gowne of purple velvet, furred with powdered ermines, having on hir head a kall of cloth of tinsell, besett with pearle and stone, and above the same upon hir head, a round circlet of gold besett so richlie with precious stones that the value thereof was inestimable, the same kall and circle being so massie and ponderous, that she was faine to beare up hir head with hir hand, and the canopie was borne over her chariot." In a second chariot came the Princess Elizabeth, and the Lady Anne of Cleves; the ladies in waiting rode upon horses covered with trappings of crimson velvet and satin. Three pageants were erected in Fenchurch-street by the Genoese, Easterling, and Florentine merchants. That of the Florentines attracted most notice; it was a lofty tower, on the top of which were four pictures, and in the middle the figure of an angel; a trumpeter was concealed within the pageant, and whenever he sounded, the angel appeared to lift the trumpet to its mouth "to the great marvelling of manie ignorant people."

Among the city pageants, the most remarkable was that of St. Paul's cathedral, thus described by Holinshed:—"There was one Peter, a Dutchman, that stood on the weathercock of Paule's steeple, holding a streamer in his hand of five yards long, and waiving thereof, stood sometimes on the one foot and shooke the other, and then kneeled on his knees, to the great marvell of all people. He had made two scaffolds under him, one about the crosse, having torches and streamers set on it, and another over the ball of the crosse, likewise set with streamers and torches, which could not burn, the wind was so great."

The conduits ran with wine, and when the civic authorities received the queen at Cheape, the chamberlain presented her with a purse of tissue containing a thousand marks in gold.

There were so many exceptions in the general pardon published at this coronation, that it should rather be called an act of attainder; among the persons excepted by name were the archbishops of Canterbury and York, the bishop of London, and the two chief justices of England, Sir Edward Montacute and Sir Roger Cholmondellie, with several barons, knights, and gentlemen of the law who had advocated the title of Lady Jane Gray.

ELIZABETH.

For many interesting anecdotes connected with the coronation of this celebrated queen, the reader is referred to the series of papers on her Progresses and Public Processions.

JAMES I.

The ceremonial for the coronation of James I. was prepared under the superintendence of that monarch, and displays many marks of the pedantry and extravagant notions of the royal prerogative, which forms so large a portion of his character. His previous distribution of honours was more lavish than usual; he created two earls, ten barons, sixty-two knights of the Bath, and conferred the honour of knighthood on about four hundred gentlemen. His coronation was celebrated July 25, 1603, the ceremonies of crowning and anointing being performed by John Whitgift, archbishop of Canterbury. There was no procession from the Tower to Westminster, in consequence of the plague which then raged in London; and for the same reason a proclamation was issued, forbidding all persons except the lord mayor, aldermen, and twelve principal

citizens of London, to attend the ceremony, for fear of spreading the infection.

An anonymous writer in the reign of Charles I., insinuates that advantage was taken of the thin attendance on this occasion to introduce some novelties into the form derogatory to the rights of the English people, and even hints that the plague was a mere pretext to keep away those who might have exposed the alterations. But this appears very improbable, because the pestilence was so alarming that the king and court removed to Winchester the morning after the coronation.

CHARLES I.

The coronation of Charles I. was delayed until the 5th of February, 1626, in consequence of the plague, which then reigned in London. Previous to the ceremony a commission was issued to Archbishop Abbot, and some other prelates, of whom Laud was the principal, empowering them to make such alterations in the ritual as might render it more in accordance with the rules of the Church of England. This circumstance induced the puritans subsequently to charge Laud with the alterations which had been really made in the time of James I. The principal novelty was the introduction of the following clause in one of the prayers: "Let him obtain favour for thy people, like Aaron in the tabernacle, Elisha in the waters, Zacharias in the temple. Give him Peter's key of discipline and Paul's doctrine." This had been omitted by the Roman Catholics since the reign of Henry, because it seemed to intimate that English kings possessed more ecclesiastical jurisdiction than the popes allowed, and for the same reason its revival was offensive to the puritans. Some superstitious people regarded it as an evil omen that the king on this occasion wore a white dress, contrary to the custom of his predecessors, who generally used purple robes.

In the year 1633, Charles went to be crowned king of Scotland at Edinburgh. He was received with great splendour, and several pageants were prepared to honour his reception. The most singular was a triumphal arch, under which a mountain was raised in the form of a theatre, upon which sat a nymph, representing the Genius of the city of Edinburgh. "Shee was attired in a sea-greene velvet mantle, her sleeves and under roabe of blew tissue, with blew buskins on her feete, about her necke shee wore a chaine of diamonds, the dressing of her head represented a castle with turrets, her locks dangled upon her shoulders." She was attended by Religion, "all in white taffeta, with a blew mantle seeded with starres, and a crowne of stones on her head, to shew from whence she is," leaning upon a shield, and trampling beneath her feet Superstition, represented as a blind old woman, covered with rags. On the left hand stood Justice, in "a red damaske mantle," trampling upon Oppression, represented as "a person of fierce aspecte, in armes, but broken all and scattered."

When the king drew near, the mountain appeared to move, and the nymph addressed a long speech to the king, of which it will be sufficient to quote the first sentence: "Sir, If Nature could suffer rocks to move, and abandon their natural places, this town, founded on the strength of rocks, (now by all cheering rays of your majesty's presence taking not only motion but life,) had with her castle, temples, and houses moved towards you, and besought you to acknowledge her yours."

On Tuesday, June 18th, the king was crowned by Spotswood, archbishop of St. Andrews.

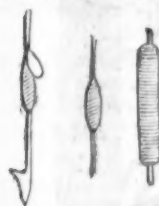
FACTS IN COMPARATIVE ANATOMY.

No. IV.

THE ORGANS OF DIGESTION IN THE CATERPILLAR, GRUB, AND BUTTERFLY.

It is impossible to bring under our observation the most apparently insignificant work of the creation, without being struck, not only with the evidence of design and with the liberality with which every creature is supplied with all that is necessary to its welfare in the state of life in which it moves, but also with the singular combination of economy with profusion which marks all the works of the Creator. It would seem as if a certain portion of material was destined to each individual, and afterwards extended so as to be of the greatest advantage to the creature. We have many very striking instances of this in the construction of the digestive organs of animals, those of the vegetable feeders being much more voluminous than those of the carnivorous tribes. The intestines of the sheep are, at least, six times the length of its body, while those of a lion or tiger do not exceed three times. The reason is, that vegetable food is less easy of digestion than animal, and requires a more complicated apparatus; and we find the same arrangement prevailing among the insect tribes. The spiral portion

Fig. 3. Fig. 2. Fig. 1.



of fig. 1, shows the size and extent of the digestive canal in the caterpillar, nearly filling the cavity of the body. It is well known that a caterpillar is exceedingly voracious, and this extent of stomach enables the creature to digest or assimilate the great quantity of food which it devours.

When after successive changes of its skin the creature has attained its full growth, it is changed into the pupa, or chrysalis, state, and having ceased to eat, the stomach shrinks up and becomes of the size and form shown in fig. 2. Soon after, emerging from its shroud, the little creature becomes a butterfly or moth, and if we now examine its stomach, fig. 3, what do we see?—the spiral portion remains as in fig. 2, but at the upper part of it a small bag is found, called the honey-stomach. Now the butterfly partakes of no solid food, and therefore, like the chrysalis, requires no proper stomach, but it does not entirely pass its life without partaking of the food with which it is surrounded; it sucks the juices of plants by means of its tubular tongue, and this honey-stomach is placed there to receive them.

So, again, if we look to the frog; while in the tadpole state, it feeds voraciously on vegetable substances, and has very long intestines; but as soon as it becomes a perfect frog, it leaps about in search of flies and other small creatures, and its intestines are suddenly shortened to one-third of their original length.

POWERS OF DEFENCE AND OFFENCE POSSESSED BY ANIMALS.

A CONTINUAL WAR seems to be going on among the inferior creatures of the animal kingdom, the stronger preying upon the weak, the sluggish submitting to the power of the swift, and those with obtuse instincts to others possessed of more cunning. But being a great object of nature to continue the succession of the species which it has pleased the Almighty to create, means are provided to counteract the destructive power possessed by the more powerful animals. We accordingly find that the larger and

more destructive kinds produce but few young at a birth, while the smaller and more inoffensive are extremely prolific; at the same time, each is provided with such powers of defence as are necessary for its well being. We have already seen how the teeth are adapted to the kind of food on which their possessor subsists, and we shall find that the means of procuring this food have been equally bestowed.

Beginning with the most destructive tribes, as lions, tigers, &c., we find them possessed of great swiftness of foot; without this power they would be unable to overtake the animals on which they chiefly subsist, such as antelopes, and the smaller species of the deer kind, which abound, in almost incredible numbers, in the regions of the torrid zone. Their chief weapons of attack are their powerful and well-armed fore-legs. With the large and apparently disproportioned paw of the lion, the creature can with ease disable its victim by a well-aimed blow, while the strong, sharp, and hooked claws with which it is furnished, assist in tearing it to pieces. The claw of the lion, and of all the cat-tribe, so necessary to the animal, is most admirable both in its construction, and in the means provided for its preservation from injury. The hinder part of the under side of the



claw itself is fixed, as it were, on a hinge to the bone of the toe, at A; a short muscle is attached to the back part, by which the claw can be drawn back at pleasure into a cavity prepared for its reception. Of this we have a familiar illustration in the foot of a cat, which, when the creature is pleased, is as smooth as velvet, but when alarmed or angry, the sharp claws are thrust out.

The tribes of animals that feed on vegetables, from the nature of their food, require no offensive weapons to obtain it; but nature has still provided them with the means of defence against the carnivorous tribes; the principal mean by which they foil their enemies being swiftness of foot. Deer, antelopes, hares, and rabbits are all famed for their fleetness. The larger tribes of vegetable feeders, as the elephant, the rhinoceros, the horse, the stag, &c. are all provided with powerful weapons of defence. The strength of the elephant and its formidable trunk constitute its weapons; the rhinoceros has its terrific horn, the horse its hoofs, and the stag its antlers. The smaller kinds of animals, whose physical powers are insufficient for their defence, escape their enemies by cunning and concealment, chiefly by burrowing in the earth.

MAN is an animal formidable both from his passions and his reason; his passions often urging him to great evils, and his reason furnishing means to achieve them. To turn this animal and make him amenable to order, to arouse him to a sense of justice and virtue, to withhold him from ill courses by fear, and encourage him in his duty by hopes; in short, to fashion and model him for society hath been the aim of civil and religious institutions, and in all times the endeavour of good and wise men. The aptest method for attaining this end hath been always judged a *proper education*.—BISHOP BERKELEY.

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